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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

PORTKA, GARY J

ART UNIT

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2188

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 10

Application Number: 09/753,372

Filing Date: January 02, 2001

Appellant(s): SIMS ET AL.

Matthew D. Jones
For Appellant

EXAMINER'S ANSWER

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This is in response to the appeal brief filed August 15, 2002.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1, 2, 3, 5, 10, 12, 13-17, 22, and 24 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Appellant's brief includes a statement that claims 4 and 18 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Appellant's brief includes a statement that claims 6 and 19 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Appellant's brief includes a statement that claims 9 and 21 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Appellant's brief includes a statement that claims 35-40 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Appellant's brief includes a statement that claims 7, 8, 11, 20, and 23 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,983,309	ATSATT ET AL.	11-1999
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(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. Claims 1-6, 9-10, 12-19, 21-22, 24, and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Atsatt et al., U.S. Patent 5,983,309.
2. As to claims 1 and 15, Atsatt discloses a *system/method of defect management, comprising:*

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a. *User area parameter, and means for providing it, defining a user data area on the media* (#LBA_R 63, see Figures 5 and 6, also Figures 16A and 16B, where #LBA_R is shown as 26 for each sparing region of zone 0 shown in Figure 16A; see column 5 lines 31-41, column 9 lines 15-17, column 17 line 66 to column 18 line 3);

b. *Replacement area parameter, and means for providing it, defining a replacement area on the media* (#Slip_R 62, see Figures 5 and 6, also Figures 16A and 16B, where #Slip_R is shown as 6 for each sparing region of zone 0 shown in Figure 16A; see column 5 lines 31-41, column 8 lines 14-22, column 9 lines 12-14, column 18 lines 3-4, column 20 lines 10-14); *where the replacement area may be null* (since the field may be set to zero), and *where the two parameters are selected to determine a distributed sparing configuration and defect management* (see column 4 lines 8-9, column 13 lines 23-30, and Figures 12B and 13A, in particular, at boxes 163 and 168, and in general column 19 line 46 to column 20 line 65; in non-recording zone based sparing the two parameters above, #LBA_R and #Slip_R, as well as Cslip, allow the setting up of sparing regions across zones as desired).

3. As to claims 2 and 16, Atsatt discloses the defect list including information identifying each independently accessible section of user data replacement area (DDT 40, Figure 3, see column 7 lines 40-42, 48-57, and column 7 line 63 to column 8 line 8).

4. As to claims 3 and 17, Atsatt discloses categorizing the sections of the replacement area as to use in replacing, as the status field 31 (see column 7 lines 63-67).

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5. As to claims 4 and 18, in Atsatt the categorizing mentioned with regard to claim 3 above includes information regarding defective user data section not recorded within the replacement area (status field 31).

6. As to claim 5, in Atsatt chaining is prevented as recited since consecutive defects require only one entry (see column 8 lines 2-6).

7. As to claims 6 and 19, in Atsatt discloses the recited conditions for selection of user data/replacement parameters causing plural equal size zones (considering the "sparing regions" at column 5 lines 31-41, and column 13 lines 23-30 as the recited zones).

8. As to claims 9-10 and 21-22, in Atsatt, as is apparent from Figure 16A, and because reassigned LBAs may be designated as desired (from column 8 lines 40-43), either area may be disposed on the media first.

9. As to claims 12 and 24, the logical address hierarchy with omission of defective physical addresses, and affect on subsequent media sections, is disclosed in Atsatt (see column 7 lines 48-57 and column 8 lines 1 and 14-22).

10. As to claim 13, in Atsatt the defect list identifies defective sections and omits them from the logical address hierarchy (see column 8 line 1).

11. As to claim 14, in Atsatt the omission of defective physical addresses is in single user data sections (LBAs, see column 7 lines 48-57 and column 8 lines 1 and 14-22).

12. As to claim 35, Atsatt discloses a *method for defect management for block addressable media, comprising:*

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- a. *Providing a spare interval parameter, establishing number of blocks of user data area on the media (#LBA_R 63, see Figures 5 and 6, also Figures 16A and 16B, where #LBA_R is shown as 26 for the zone 0 shown in Figure 16A; see column 5 lines 31-41, column 9 lines 15-17, column 17 line 66 to column 18 line 3);*
- b. *Providing a spare length parameter, establishing number of blocks of user sparing area on the media (#Slip_R 62, see Figures 5 and 6, also Figures 16A and 16B, where #Slip_R is shown as 6 for the zone 0 shown in Figure 16A; see column 5 lines 31-41, column 8 lines 14-22, column 9 lines 12-14, column 18 lines 3-4, column 20 lines 10-14); where the number of blocks of sparing area may be zero (since the field may be set to zero), and where the two parameters are selected to determine a distributed sparing region irrespective of physical zones (see column 4 lines 8-9, column 9 lines 26-29, column 13 lines 23-30, and Figures 12B and 13A, in particular, at boxes 163 and 168, and in general column 19 line 46 to column 20 line 65; in non-recording zone based sparing the two parameters above, #LBA_R and #Slip_R, as well as Cslip, allow the setting up of sparing regions across zones as desired, and thus are selectable to determine sparing regions irrespective of the media zones – see also column 4 lines 8-9, and column 13 lines 23-30), maintaining a defect list including information identifying each block of user sparing area (DDT 40, Figure 3, see column 7 lines 40-42, 48-57, and column 7 line 63 to column 8 line 8), wherein the list includes information regarding status of each block (status field 31, see column 7 lines 63-67).*
13. As to claim 36, Atsatt discloses information of defective block that has not been recorded to replacement area, as the status field 31 (see column 7 lines 63-67).

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14. As to claim 37, the logical address hierarchy with omission of initially determined defective physical addresses, and affect on subsequent media sections, is disclosed in Atsatt (see column 7 lines 48-57 and column 8 lines 14-22).

15. As to claims 38 and 40, in Atsatt the sparing configuration, and selection of user and replacement area parameters, is determined irrespective of geometric arrangement due to physical structure, as described with regard to claim 35.

16. As to claim 39, the selection of spare interval and length parameters define defect management for a particular use of the media (inherent).

Allowable Subject Matter

17. Claims 7-8, 11, 20, and 23 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

(11) Response to Argument

The following response is to arguments made with regard to claims 1 and 15, until otherwise noted. Appellants argue that the #Slip_R variable of Atsatt is not equivalent to the recited replacement area parameter. Appellants specifically state in the brief in several places that #Slip_R defines the amount of slipped sectors within a sparing region, which is not useable as a replacement area. The underlined statement is an incorrect interpretation of Atsatt. The purpose of slipping sectors is to account for defective sectors. As shown in Figure 16A, Zone 0 has two sparing regions each with

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26 LBAs and 6 extra sectors as shown by #Slip_Region (which is the same as #Slip_R, see Figure 16B, and column 20 lines 10-14). When sectors are found to be defective at the time the media is formatted, they are mapped out at that time ("factory mapped out sector", see column 19 line 46 to column 20 line 10), using up some of the available slip sectors. The remaining slip sectors are available as spares for future defects. See column 8, lines 17-19: "These sectors are not available to the user, but are reserved for replacing defective sectors or are themselves defective." They are said to be not available because, as in the example of Figure 16A, the user can only see 26 LBAs per sparing region. The slipped sectors already defective are designated "M". The remainder (cells 31 and 32 for the first sparing region) are designated "S" and are "reserved for replacing defective sectors". This means that if any other sector in the sparing region becomes defective, that sector may also be mapped out and replaced with one of the spare sectors. Thus, it is readily seen that in this example of #LBA_R = 26 and #Slip_R = 6, there are 6 sectors available for replacing defective sectors in the sparing region. Some are immediately found to be defective and thus are immediately mapped out (the M cells); the rest are reserved as spares (the S cells) for replacing further defective sectors. Therefore, the Examiner makes the first observation that at the time immediately before the media is formatted, the parameter #Slip_R does in fact give and thus define the number of sectors available as replacement sectors.

Additionally, modern disk drive manufacturing techniques have steadily improved, and it is not uncommon that drives be manufactured and formatted without showing any initial defective sectors whatsoever (no M cells). In this case the drive

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would have 6 sectors in this sparing region, as designated by #Slip_R, available for replacement data. The Examiner further maintains that an artisan would have recognized that the example shown in Atsatt Figure 16A is just one of many possibilities, and that one easily conceived possibility is that at initialization there are zero defects, and in this case the #Slip_R precisely defines the number of sectors available for replacing user data.

Appellants argue that the Examiner is improperly combining features of Atsatt. However, the Examiner is not combining the features of the #Slip_R parameter and the Slip field as stated in the argument; instead, statements made in the disclosure about both of these elements were cited as support of the interpretation of #Slip_R. The two elements are analogous in that they each give the number of slipped sectors, the Slip field from the start of the drive up to a certain LBA (column 8 lines 14-17), and #Slip_R for a sparing region. This difference is irrelevant to the reason that the aforementioned statements were cited, which was that the reference clearly indicates that the slipped sectors are for the twofold purpose of 1) accounting for the mapping out of sectors found to be defective at format time, and 2) accounting for the providing of spare sectors for sectors found to be defective at some future time.

Appellants argue that in stating that when no sectors are defective, #Slip_R indicates sectors available for replacement, the Examiner is making an inherency argument that must be supported by a basis in fact or technical reasoning. The Examiner maintains that a basis and reasoning has been established that would have

been recognized by one of ordinary skill in the art, as more completely described in the first and second paragraphs above under "Response to Argument".

Appellants argue that #Slip_R is not used to define the media properties, but instead to store the information for describing the media. The Examiner responds that the storing of information that describes a media area also defines the media area as recited. Define means "to state the meaning of" or "to describe the nature or qualities of" (Webster's II New College Dictionary, 1995); since the parameters #LBA_R and #Slip_R (among others) provide the media area information required in order to access the media, they describe qualities of and thus define the media areas.

Regarding claims 4 and 18, Appellants argue that the status bit field of Atsatt merely indicates whether an associated entry of the DDT is good or reassigned. The Examiner responds that when a sector becomes defective, there has to be a reassignment of the data before the data can actually be recorded in the replacement area (the data is recorded to a replacement area as a result of being reassigned), and thus the reassignment is indicated by the status field before the data of a defective section is recorded in the replacement area, therefore meeting the claim limitations.

Regarding claims 6 and 19, Appellants argue that the dispersing of small sparing regions on the media in Atsatt does not teach "equal in size zones of user data area and user data replacement area." The Examiner responds that the quoted limitation may be interpreted in two ways. As stated in the rejection, the first interpretation is that each individual "zone" comprises a user data area and a user data replacement area, and that Atsatt teaches small equal size zones ("sparing regions") as recited. The second

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interpretation is that "zone" refers to a zone for user data and a zone for user data replacement that are each equal size. This specific option is encompassed by the disclosure of Atsatt since the user data area and the user data replacement area may each be defined as desired.

Regarding claims 9 and 21, Appellants argue that Atsatt does not teach that LBAs can be designated as desired, and thus does not teach that a user data replacement area is disposed on the media prior to the user data area. The Examiner responds that the claims provide for multiple user data and user data replacement areas, and claim language of claim 21 does not require a replacement area before its associated or corresponding data area, and that Figure 16A shows at least one replacement area (cells 31 and 32) before a data area (i.e., cell 43). However, even the limitation that a replacement area occurs before its corresponding data area is encompassed within the disclosure of Atsatt; for example, the reassigned sector shown in Figure 16A ("R") occurs before other data areas. The relationship between a spare sector and a reassigned sector is that a sector that was originally spare and is used to store data in lieu of a newly defective sector is now reassigned. It is clear that reassigned sectors (which must be spare immediately before being reassigned) may be anywhere in relation to the data reassigned, and not necessarily at the end of the sparing region, and so it follows that it was intended that spares could also be anywhere desired on the media in relation to the corresponding data.

Regarding claim 35, the "spare length parameter" and the "spare interval parameter" of claim 35 are synonymous with the "user data replacement parameter"

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and the “user data parameter”, respectively, of claims 1 and 15. Thus, Appellants arguments regarding claim 35 (pages 14-17 of the brief) largely overlap with the arguments regarding claims 1 and 15, and were responded to above. The additional argument is that the parameters of Atsatt are entries of the PZT and describe each recording zone on the media, and thus do not provide the recited “selecting ... irrespective of physical zones of the media”. The Examiner disagrees, because Atsatt provides support for “zone based sparing and arbitrary size sparing region based sparing” (column 4 lines 8-9), and at column 20 lines 36-48 in particular an example is shown where the parameters #Slip_R and #LBA_R are used in “no recording zone based sparing”.

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For the above reasons, it is believed that the rejections should be sustained.

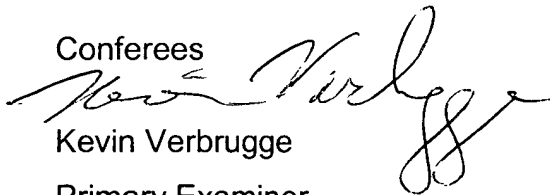
Respectfully submitted,

Gary J Portka
Primary Examiner
Art Unit 2188



November 26, 2002

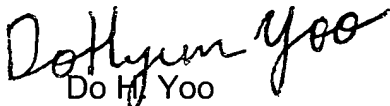
Conferees



Kevin Verbrugge

Primary Examiner

AU 2188



Do H. Yoo

Supervisory Patent Examiner

AU 2187

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400